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Leukaemia Section

Short Communication

i(X)(q10) in male patient

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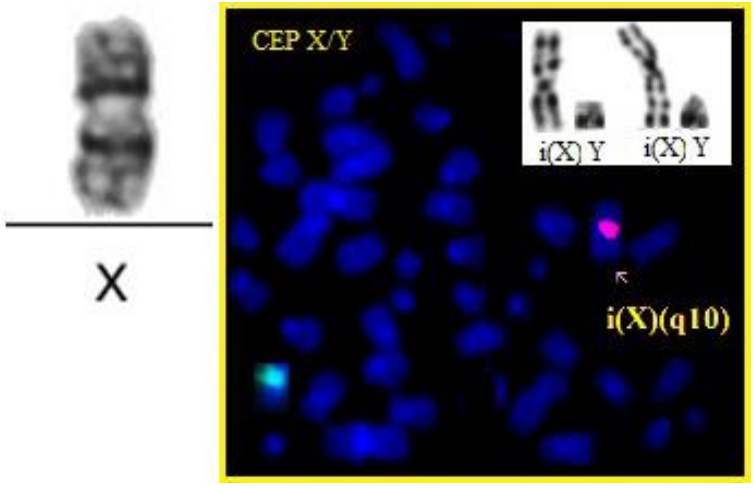
Abstract

Review on i(X)(q10) in male patients.

KEYWORDS

Chromosome X; Acute lymphoblastic leukemia; Diffuse large B-cell lymphoma; Follicular Lymphoma.

Identity



i(X)(q10) Â Partial karyotypes (G-banding) with i(X)(q10). Hybridization with CEP X Spectrum Orange probe specific for the alpha satellite (centromeric) chromosome X region, (Abbott Molecular, US) showing the signal on normal X and on i(X)(q10) chromosomes- Courtesy Adriana Zamecnikova.

Clinics and pathology

Disease

Extremely rare i(X)(q10) occurs in male patients, only five cases have been reported in lymphoid malignancies, including acute lymphoblastic

leukemia (ALL) (Bacher et al, 2009), diffuse large B-cell lymphoma (Itoyama et al, 2002, Gindina T., table 1, case #3) and follicular lymphoma (Dave t al, 1999; Donti et al., 1988).

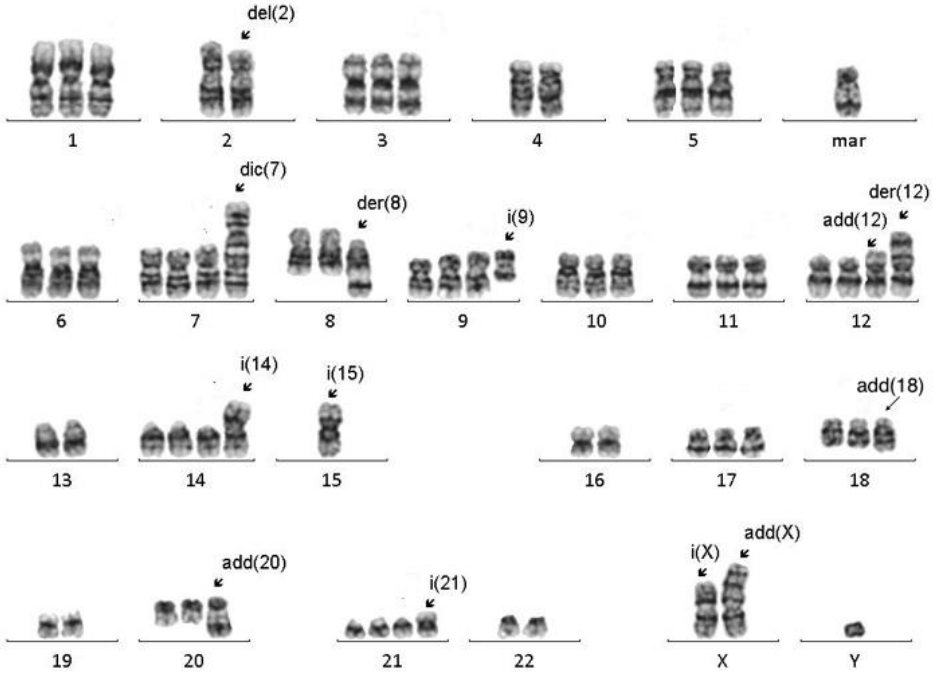
Epidemiology

Table 1. Reported cases with i(X)(q10).

Pts	Age, gender	Disease	Karyotype	Author
1	51, M	B-cell precursor ALL (relapse after CT)	46,Y,**i(X)(q10)**,der(1)dup(1)(q32q21)t(1;17)(q42;q23),ins(7;8)(p21;p21;23),der(17)t(1;17)(q42 ;q23)[6]/46,XY[17]	Bacher et al, 2009
2	?, M	DLBCL	47-48,**i(X)(q10)**,-Y,inv(1)(p32q21),del(2)(q13),hsr(3)(q27),add(4)(q35),del(4)(q31),-6,+7,der(11)t(5;11)(q13;q23),+13, t(14;18)(q32;q21),-15,-16,-17,+mar	Itoyama et al, 2002
3	60, M	DLBCL	67<3n>,Y,add(X)(p22),**i(X)(q10)**,-2,del(2)(p21),-4,+7,+7,dic(7;7)(p22;p22),der(8)del(8)(p12)t(8;11)(q24;q13),+9,i(9)(p10),+12,der(12)t(3;12)(q13;p13),add(12)(p13),-13,+14,i(14)(q10),-15,-15,i(15)(q10),-16,add(17)(p11),add(18)(q23),-19,add(20)(q13),+21,i(21)(q10),-22,+mar [20] (**Fig 1 and 2.**)	Gindina T, own case
4	75, M	FL	47,XY,+**i(X)(q10)**,t(1;11)(p36;q21),del(4)(q32),del(9)(q21),t(14;18)(q32;q21)[8]/46,XY[2]	Dave et al, 1999
5	?, M	FL	48,XY,+**i(X)(q10)**,+i(X)(p10),add(1)(q?),+12,add(14)(q?)/48,Y,i(X)(q10),+i(X)(p10),add(1),t(2;8)(p12;q24),+12,add(14)	Donti et al, 1988

ALL: acute lymphoblastic leukemia; DLBCL: diffuse large B-cell lymphoma; FL: follicular lymphoma

Cytogenetics



Complex karyotype with extra i(X)(q10) in a patient with DLBCL (table 1, #3).

Additional anomalies

Additional chromosome anomalies were observed in all five patients. Extra i(X)(q10) was present in 3 patients (Donti et al., 1988; Dave et al, 1999; Gindina et al, case #3). Associated in combination with other isochromosomes in 2 patients (Donti et al, 1988; Gindina, case #3). In all cases, i(X)(q10) is part of a complex karyotype. t(14;18)(q32;q21) was found in 2 cases: 1 FL case and 1 DLBCL (Dave et al, 1999; Itoyama et al, 2002).

Result of the chromosomal anomaly

Fusion protein

Oncogenesis

The major consequence of this abnormality is loss of several genes on Xp and gain of several genes on Xq, that leads to genetic imbalance.

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